Investigation on the risk of brucellosis linked to the production and consumption of milk in rural Cinzana, Mali.

Sow I., Fanè A., Niang M., Makita K., Costard S., Grace D., Bonfoh B.

Overview

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Introduction

- Brucellosis is one of the major zooanthroponosis and endemic to sub-Saharan Africa (Félix. R., 2003). Present in Mali with 30% in urban areas and 4% in rural areas (Bonfoh et al., 2004).

- This infection can result from direct contact with animals (10.2%), can be transmitted to humans through the consumption of unpasteurized milk (19.4%) and through the consumption of other dairy products (10.5%) (Steinmann et al., 2006).

- Considerable socio-economic impacts on human and animal health, specifically in rural areas where income is strongly related to livestock and dairy products.

- Valorisation of local milk through the creation of processing facilities for milk and dairy products; unregulated and dominant informal sector resulting in low disease control.

- Safe Food Fair Food program on participatory risk analysis of food borne diseases of animal origin in the informal sector. Funded by the BMZ / GIZ and implemented by ILRI, with CSRS and LCV partner institutions as case studies.

Objectives

1. General objective

- Improve public health by controlling risks at the human-animal interface.

2. Specific objectives

- To determine the risk of brucellosis linked to the consumption of milk from goats and dairy cattle;
- To determine the prevalence of brucellosis in humans, goats and cows;
- To identify risk factors of brucellosis.

Methodology

1. Sampling

- Rural area Cinzana, Mali: 12 villages
- samples:
  - ✓ Dairy herds (cows and goats)
  - ✓ Serum of five lactating females in the herd (cows and goats each)
  - ✓ Serum of humans (regular contact and milk consumption)

2. Focus group discussion

coupled with open question interviews during general meetings in villages

- Describe habits and practices related to milk production and consumption to determine the perception of milk;
- Determine the perception on abortion materials

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Focus group discussion in a study village

Human blood sample taken by nurse at health centre

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Sampling of a cow and a goat

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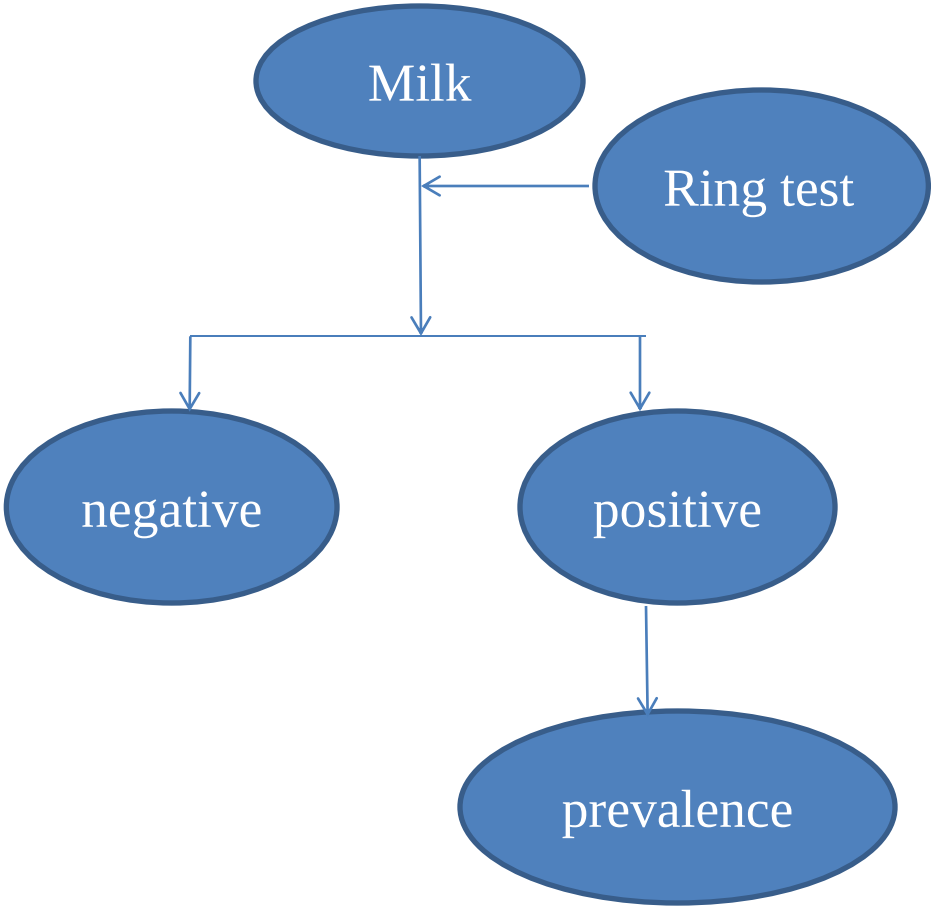
Methodology (con't)

Table 1: Size calculated and obtained by village.

Villages	Cattle herds		Goat herds		Humans	
	Calculated	Obtained	Calculated	Obtained	Calculated	Obtained
Bakawêrê	6	5	2	3	8	10
Oundia	25	4	8	10	25	24
Makiwêrê	7	2	2	2	11	11
Falema	11	5	3	9	28	32
Séribougou	15	7	5	6	23	26
Foabougou	21	2	7	7	33	21
Zankourabougou I	15	4	5	5	26	22
Zankourabougou II	21	3	7	7	41	18
Fassombougou II	14	2	5	6	32	19
Dotombougou	15	5	5	6	24	6
Minankofa	37	5	12	12	30	1
Bougoukoura	15	4	5	4	32	23
Total	**202**	**48**	**66**	**77**	**314**	**213**

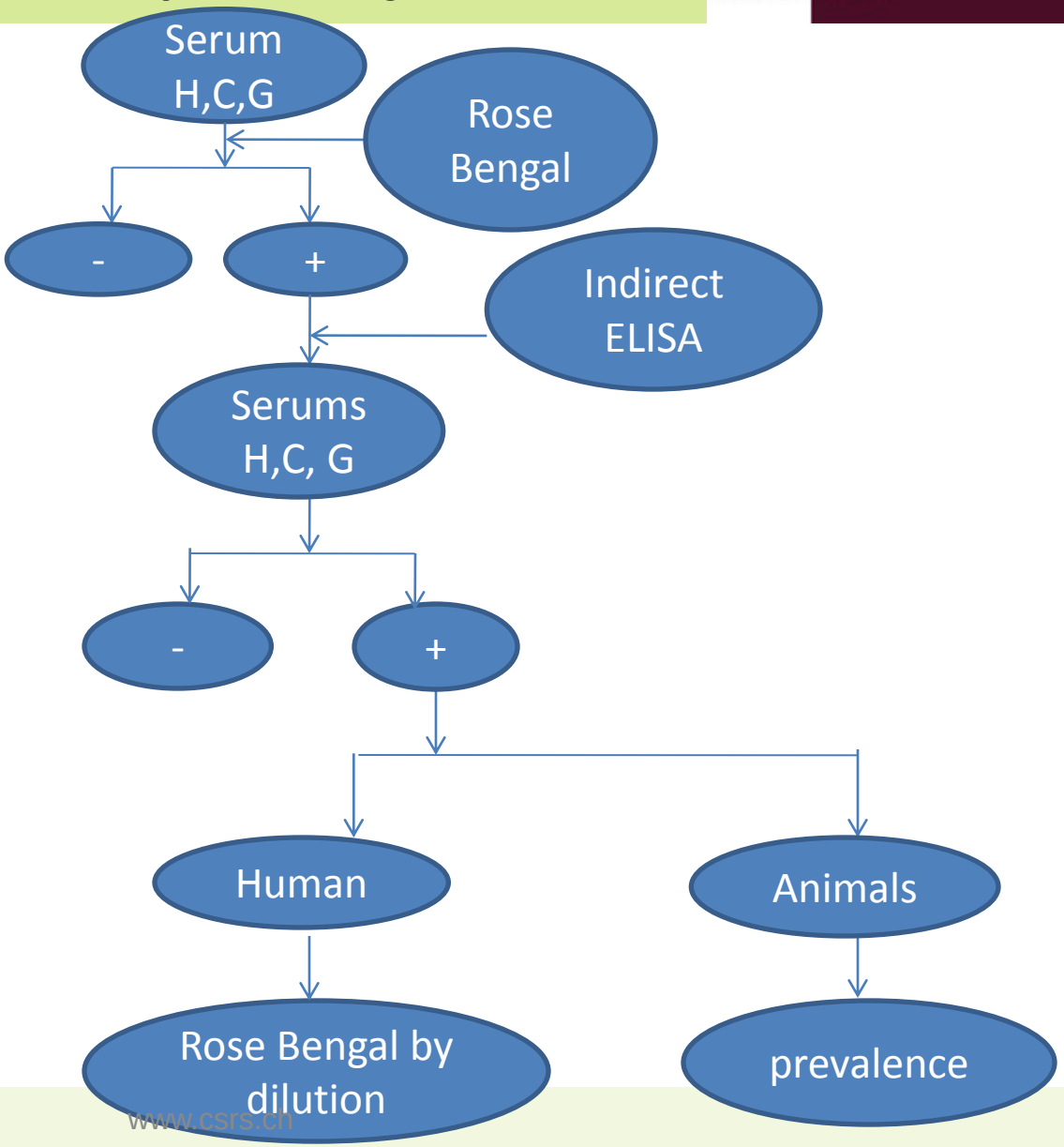
Methodology (con't)

Determination of brucellosis by the ring test



Methodology (con't)

Determination of brucellosis by Rose Bengal and ELISA.



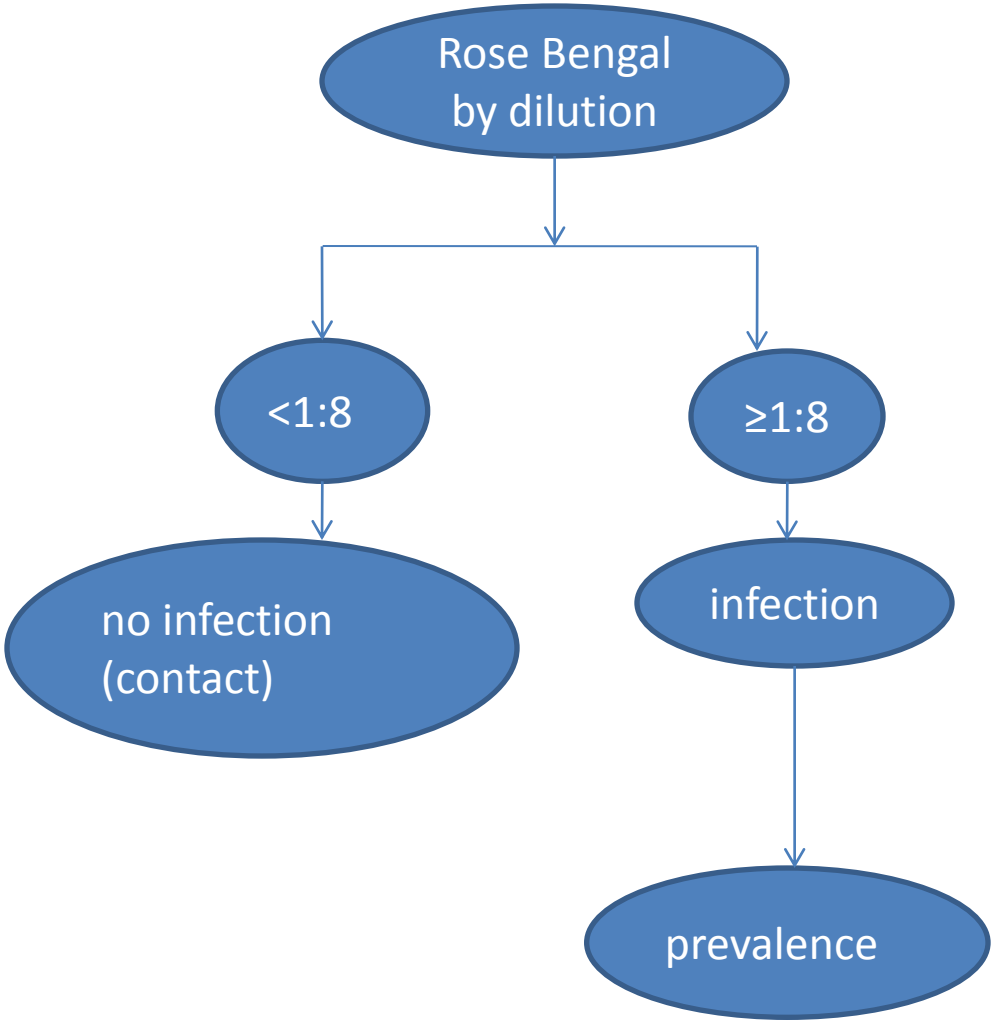
H: human

C: cow

G: goat

Methodology (con't)

Evaluation of human infection by Rose Bengal by dilution.



Methodology (con't)

3. Statistic analysis

- Descriptive statistic, and arithmetic medium in particular

Results

Table 1: results milk samples tested by ring test

Villages	Number		Number positive	
	Cow	Goat	Cow	Goat
Bakawêrê	6	6	2	0
Oundia	5	9	0	0
Makiwêrê	2	6	0	0
Falema	7	9	0	0
Séribougou	2	7	0	0
Foabougou	2	7	0	0
Zankourabougou I	4	5	0	0
Zankourabougou II	0	7	0	0
Fassombougou II	2	6	0	1
Dotombougou	1	5	0	0
Minankofa	3	3	0	0
Bougoukoura	2	5	0	0
Total	**34**	**75**	**2**	**1**

Results (con't)

Table 2: results serum of cows, goats and humans.

Villages	Number			No. of positive cases		
	Human	Cow	Goat	Humain	Vache	Chèvre
Bakawêrê	10	25	15	1	0	0
Oundia	24	16	46	0	0	0
Makiwêrê	11	7	15	0	0	0
Falema	32	20	48	0	0	0
Séribougou	26	28	32	0	0	0
Foabougou	21	8	35	0	0	0
Zankourabougou I	22	20	25	0	0	0
Zankourabougou II	18	15	35	0	0	0
Fassombougou II	19	8	31	0	0	0
Dotombougou	6	25	36	0	0	0
Minankofa	1	17	58	0	0	0
Bougoukoura	23	15	28	0	0	0
Total	**213**	**204**	**404**	**1**	**0**	**0**

Results (con't)

- Out of the 213 persons tested, one person was positive for brucellosis;
- This person is a woman at the age of 44 years belonging to the ethnic group of the Djawambé, and claims to have handled bovine abortion material;
- Common practices are the consumption of raw milk, milking practices of animals (cow and goat).

Conclusion/ Recommendations

- The risk of brucellosis exists in rural area, but with a low prevalence in animals.
- Further investigation is needed to confirm this prevalence in rural area.
- Conventional methods such as the elimination can be used to eradicate brucellosis in rural areas.

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THANKS A LOT

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